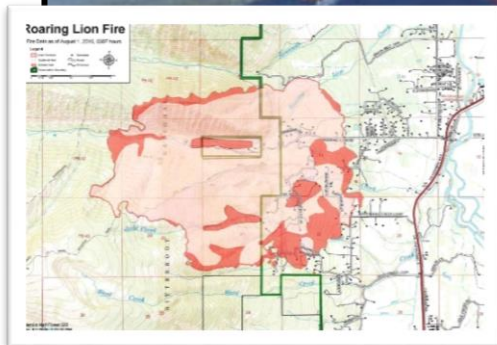
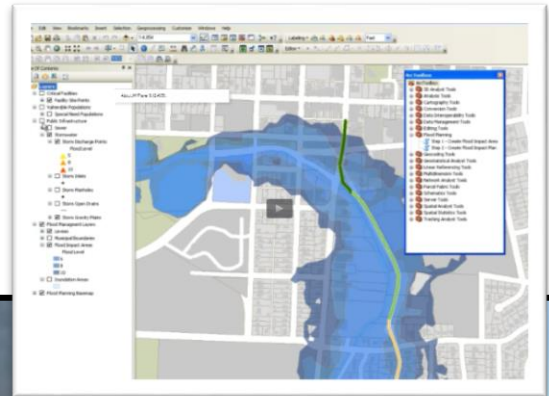


Development of an

Emergency Management Map Application (EMMA) for Carbon County



Montana Land Information Grant Application FY2019

Carbon County Disaster & Emergency Services

February 15, 2018

APPLICATION FOR MLIA GRANT FUNDING

SECTION 1 – APPLICANT, PARTNER, AND PROPOSAL INFORMATION

Primary Applicant Contact Information	
Name of Agency/Entity:	Carbon County
Department:	Disaster & Emergency Services
Division/Section:	
Street:	PO Box 887
City:	Red Lodge
County:	Carbon
State:	MT
Zip Code:	59068
<i>Project Manager Contact Information:</i>	
Name:	Tom Kohley
Title:	DES Coordinator
Email Address:	tkohley@carboncomt.com
Phone Number:	406-446-1038
Fax Number:	406-446-2640
<i>Secondary Contact Information:</i>	
Name:	Angela Newell
Title:	Administrator
Email Address:	anewell@carboncomt.com
Phone Number:	406-446-1595
MLIA Grant Funding Request & Match:	
Total Requested MLIA Funds:	\$14,930
Total Matched Funds:	\$ 7,450

Proposal Information	
Date Submitted:	February 15, 2018
Identified Grant Priority:	Grant Priority I.B: Development of GIS to support Disaster and Emergency Operations and Planning
Annual or Multi-Year Proposal:	Annual
Proposal Prepared By:	Tom Kohley
Short Title of Proposal:	Development of the Emergency Management Map Application (EMMA) for Carbon County
<p>Executive Summary</p> <p>This project will develop EMMA, a Web map application that integrates critical elements of existing emergency and disaster plans in Carbon County. EMMA will provide more meaningful, spatially driven content that combines hazards, risk assessment, best practices for response and known locations of mitigation projects and emergency resources. The final product will be a County-level, all-hazard, Web map application to assist emergency professionals in preparing for, responding to and recovering from emergencies and disasters.</p>	
<p>List All Past Awarded MLIA Grants:</p> <p>2012 - Development of an Emergency Notification System for Carbon County</p> <p>2013 – Development of a Carbon County GeoAtlas for Emergency Management</p> <p>2015 - Enhancement of Geodetic Control in Carbon County</p> <p>2018 - Preparing Carbon County for Next Generation 9-1-1</p>	

Funding Partner	
Name of Contact:	Burke Honzel
Name of Agency:	Montana State DES
Street:	1956 MT Majo St / PO Box 4789
City:	Helena
County:	Lewis & Clark
State:	MT
Zip Code:	59636-4789
Contact Email Address:	bhonzel@mt.gov
Contact Phone Number:	406-324-2777

SECTION 2 – RELEVANCE

Most county-level emergency management programs maintain multiple planning documents to better prepare, mitigate, respond to and recover from emergencies and disasters. These often include:

1. Emergency Operation Plan (EOP). The ongoing plan maintained for responding to a wide variety of potential hazards.
2. Pre-Disaster Mitigation (PDM) Plan. A plan to reduce risks from natural hazards and serves as a strategic guide for decision-makers.
3. Resource List. An inventory of equipment, supplies, and facilities available for incident operations.
4. Community Wildfire Protection Plan (CWPP). A local plan that addresses issues such as wildfire response, hazard mitigation, community preparedness, or structure protection.
5. Hazard Vulnerability Assessment (HVA). An assessment that evaluates the damage that could be caused by a potential disaster and the severity of the impact.

There are several limitations to developing and maintaining multiple emergency planning documents. First, these documents have evolved independently and on different time schedules which means they contain duplicative information, vary widely in detail and do not share a consistent format. Second, they are most often published as paper documents and are revised only when required by Federal or State statutes. Lastly and most relevant to this grant program, most of these documents have spatial elements that have not been developed to their full potential.

This project will benefit the Montana Land Information Plan Grant Priority I-B. EMMA will support emergency planning by consolidating local planning documents into one application. It will reduce redundancy and provide a framework that will facilitate the upkeep of these plans. EMMA will be easier to access, provided more meaningful, spatially driven content and bring together hazards, risk assessment, best practices for response, locations of resources all into one resource. It is our goal to make EMMA a model that can be replicated in other counties or tribal governments.

SECTION 3 – PUBLIC BENEFIT

This project will support FEMA's National Preparedness Goal by bringing together emergency management information into a single resource and make it accessible to the professionals that need it most – firefighters, law enforcement, emergency managers, medical providers, public health, incident commanders and elected officials. EMMA has the potential to be used at the State and local level and in all five mission areas identified by FEMA; Prevention, Protection, Mitigation, Response and Recovery.

At the State level, this project will directly benefit the structures MSDI theme by including critical infrastructure such as schools, government facilities, public water supplies, wastewater treatment facilities, communication towers and disaster shelters.

This project will demonstrate GIS as a framework for emergency management information sharing to Montana State DES. In collaboration with State DES, we will explore new ways to leverage Web map applications to support their mission of coordinating comprehensive emergency management in Montana.

Most importantly, EMMA has the potential to save property and lives. As a planning tool, it will help our communities become more resilient and be better prepared for emergencies and disasters. As an operation resource, EMMA will assist emergency professional in making informed decisions in critical moments of crisis. The State could see significant savings in response if major incidents can be prevented or mitigated.

SECTION 4 – PROJECT MANAGEMENT AND ORGANIZATIONAL CAPABILITY

Carbon County has the project management and organizational capacity needed to complete this project on time and within budget. Carbon County has been the successful recipient of four MLIA grant awards and has a proven history of products that benefit the mission of the MSDI. The following individuals offer a unique combination of knowledge, technical skills and experience necessary to accomplish the objectives and tasks outlined in this proposal.

Tom Kohley – Carbon County Disaster & Emergency Services Coordinator and GIS Manager. Tom will serve as project manager. He has over 25 years of GIS experience and now serves as the Disaster & Emergency Services (DES) coordinator for Carbon County. His unique experience in GIS, emergency management and project administration will greatly contribute to the success of this project. Tom is well networked with the State DES and has already received commitment from the State office to assist with the development EMMA (see attached letter of support). The combination of local and state emergency management involvement will produce a meaningful product that can serve as a model for other jurisdictions to replicate.

In addition to MLIA grant administration, Tom has also received and administered funding from the Emergency Management Performance Grant program (3 years at approx. \$150k), State Homeland Security Grant program (2 years at approx. \$180k), Volunteer Firefighters Award grant (2 years at approx. \$15k) and Recreational Trails Program (3 years at approx. \$80k).

As with past MLIA grants, Tom will write the quarterly reports and be the primary contact for the MSL on this project. He will follow local procurement policies to hire a qualified consultant and GIS technician to assist with the development of EMMA.

Angela Newell – Administrative Assistant to the Commissioners. Mrs. Newell will serve as grant administrator and will be responsible for integrating the grant money into appropriate County budgets, preparation of grant reimbursement paperwork and final closeout of the grant in accordance with state and county standards. Ms. Newell has served as Administrative Assistant to the Commissioners for over 5 years. During that tenure, she has administered several grants for the County including the County's three previous MLIA grants awarded in 2012, 2015 and 2018. Ms. Newell successfully completed the Grant Writing USA workshop on grant management in 2013.

Burke Honzel – Preparedness Branch Manager, Montana State DES. Burke will serve as the primary contact for State Disaster & Emergency Services. He will also appoint others from his Branch and also representatives from the Response and Mitigation Branch of the Department to review and test EMMA.

SECTION 5 – SCOPE OF WORK

Goal 1. Design the Emergency Management Map Application (EMMA)

Objective 1. Identify all hazards and resources of existing Carbon County emergency plans that are, or could be made into spatial layers. Also Identify external spatial data sources containing meaningful emergency management information to the County.

Task 1. Develop a table of local hazards and resources to be included in EMMA and compile/create appropriate metadata where possible. Estimate time frame and resources needed to incorporate or create layers into EMMA.

Task 2. Identify and catalog external sources of spatial emergency management data for use within EMMA (e.g., Web-hosting services from authoritative data producers).

Objective 2. Explore similar solutions and projects to avoid duplication.

Task 1. Meet with State DES to explore project concepts and learn about similar needs and/or projects from other State or local jurisdictions. This task will require one trip to Helena to meet in person with DES personnel.

Task 2. Attend the ESRI User Conference in San Diego to 1) learn about new developments in ArcGIS and the industry-specific solutions, and 2) meet with members of the emergency management solutions team to identify ways to incorporate solution-specific concepts into EMMA.

Objective 3. Identify a suitable Web application framework and develop prototype.

Task 1. Sole source contract with qualified GIS consulting firm or individual.

Task 2. Work with Consultant to identify suitable Web map templates, Software as a Service (SaaS) applications, industry solutions or use of the Web App Builder to most effectively incorporate existing and new spatial layers, images, text, video and other multi-media into EMMA. This task will require assistance from a consultant who has significant experience with Web map applications leveraging the ArcGIS Online platform. We will meet with the consultant during this phase of the project. Consultant/Location TBD.

Goal 2. Develop EMMA

Objective 1. Migrate critical emergency plan components to EMMA

Task 1. Hire a GIS/Office technician to assist with GIS data development and with the extraction, conversion and re-formatting of plan content.

Task 2. Purchase 2 iPad Mini tablets for use by the DES Coordinator and technician to ensure that EMMA is mobile device compatible during development.

Task 3. Identify and extract essential content from existing plans, condense and re-format to standardized template within EMMA. We estimate that 100 hours of technician time will be needed to complete this task.

Objective 2. Create needed GIS layers to enhance emergency management in the County.

Task 1. Identify and develop the top 5 GIS layers and metadata for those emergency themes that contain a spatial component but do not yet exist as a spatial layer. We estimate that 60 hours of the GIS/Office technician will be needed to complete this task.

Goal 3. Review EMMA for design and content

Objective 1. Request external review of EMMA prototype by State DES and GIS Industry leader

Task 1. Present EMMA prototype to representatives from Montana State DES and work collaboratively to improve the application for use by State and other local jurisdictions. DES employees from the Preparedness Branch and the Response and Recovery Branch will review the application, provide feedback and suggest ways to replicate the application in other local jurisdictions. This task will require one trip to Helena to meet in person with DES personnel.

Task 2. Present EMMA prototype to members of ESRI's emergency management solution team via WebEx. The purpose of the meeting will be to request feedback on the application but to also demonstrate a real-world, rural Montana emergency management solution that could be incorporated into future solutions developed by ESRI.

Goal 4. Test, evaluate and deploy EMMA

Objective 1. Test and with local emergency responders in a simulated exercise and deploy application to interested parties.

Task 1. Develop a Table-Top Exercise (TTX) that would simulate multiple natural and human-caused emergencies and test the performance of EMMA as a resource during these incidents. The TTX would conclude with an After Action Review (AAR) by all participants and an improvement plan would be drafted and submitted to the MSL and State DES.

Task2. Deploy EMMA to emergency planners, managers and responders throughout the County. We will evaluate if this application needs to be made publicly available or if we will assign ArcGIS Online user accounts to limit access the system (i.e, will EMMA contain sensitive information). This task will involve the renewal of the County's 10-user licensing of AGO to provide account-specific access to EMMA.

PROJECT TIMELINE

Task	2018						2019					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
G1-01-T1. Develop table of local hazards												
G1-01-T2. Identify external spatial data												
G1-02-T1. Meet with State DES												
G1-02-T2. Attend ESRI UC												
G1-03-T1. Contract with GIS Consultant												
G1-03-T2. Work with Consultant on framework												
G2-01-T1. Hire GIS/Office Technician												
G2-01-T2. Purchase iPads												
G2-01-T3. Extract and re-format plan content												
G2-02-T1. Create top 5 GIS layers												
G3-01-T1. Present prototype to State DES												
G3-01-T2. Present prototype to ESRI												
G4-01-T1. TTX using EMMA; AAR-IP												
G4-01-T2. Deploy EMMA through AGO												

SECTION 6 – BUDGET JUSTIFICATION AND BUDGET TABLE

The total budget for this project is \$22,930 with \$14,930 being requested from the MLIA grant program. The applicant will contribute and a cash and in-kind total of \$7,450 towards the project. The funding partner will contribute a total of \$1,350 of in-kind match.

MLIA Share. \$3,000 will be used to contract with the selected consultant who will assist in the design of EMMA. The project manager will meet with the consultant in person with travel expenses estimated at \$500 (700 miles/trip (\$350), \$150 lodging & per dium/day). The MLIA share will also be used to hire a seasonal, part-time GIS/Office technician to assist with the development of the 5 GIS layers and also help convert content from existing plans to EMMA (\$2880). Two trips to Helena are planned to meet with State DES personnel to design/review EMMA (\$800 - 500 miles/trip (\$250), \$150 lodging & per dium/day). \$1,250 will be used to purchase two iPad Mini Air Tablets with protective cases. These will be used by the project manager and the technician to test and evaluate the EMMA application on mobile devices. They will also be used by participants in the TTX to test and review EMMA. \$100 is budgeted for supplies like printer and plotter paper and for consumable materials to organize and execute the TTX. Finally, \$5,000 will be used to purchase a one year subscription to ArcGIS Online (10 user account) to allow access to EMMA for the DES coordinator, Commissioners, Fire Chiefs and other emergency personnel in the County.

Applicant Share. Carbon County will contribute cash and in-kind services valued at \$7,450. \$2,000 cash will be provided from recording fees collected by the County and will be used to pay for the services of the selected consultant. The County will also contribute \$300 to help pay for the project manager's attendance at the ESRI User Conference. In addition, the County will provide the following in-kind contributions:

- 10 hours at \$35 per hour (including fringe benefits) for grant administration to manage the budget and submit reimbursement paperwork (Angela Newell).
- 120 hours at \$40 per hour (including fringe benefits) for GIS database development and project management (Tom Kohley).
- 160 hours at \$18 per hour for GIS technician to help build GIS layers and transfer content from the plans to EMMA.
- 30 hours at \$45 per hour (including fringe benefits) for Montana State DES personnel (estimated 3 people @ 2 half day meetings) to review and comment on the development of EMMA.


A long term funding plan for this project is not necessary as the maintenance of this application, software licensing and update of content will be included with the duties and budget of the DES Coordinator and the Department.

MLIA GRANT BUDGET SUMMARY TABLE


MLIA GRANT BUDGET SUMMARY					
	Applicant Summary			Funding Partner Summary	
Category	MLIA Share	Applicant Share	Applicant Subtotal	Funding Partner	Total
a. Personnel					
Grant administrator	\$ -	\$ 350	\$ 350	\$ -	\$ 350
GIS Coordinator / Project Manager	\$ -	\$ 4,800	\$ 4,800	\$ -	\$ 4,800
GIS / Office Technician	\$ 2,880	\$ -	\$ 2,880	\$ -	\$ 2,880
State DES Personnel (In-Kind)				\$ 1,350	\$ 1,350
b. Travel					
Consultant - Location TBD (1 trip)	\$ 500	\$ -	\$ 500	\$ -	\$ 500
ESRI User Conference - San Diego	\$ 1,400	\$ 300	\$ 1,700	\$ -	\$ 1,700
State DES - Helena (2 trips)	\$ 800	\$ -	\$ -	\$ -	\$ -
c. Equipment					
iPad Mini Air 128Gb Tablet w/ case (2)	\$ 1,250	\$ -	\$ 1,250	\$ -	\$ 1,250
d. Supplies					
Misc. Supplies	\$ 100	\$ -	\$ 100	\$ -	\$ 100
e. Contractual					
GIS Consultant	\$ 3,000	\$ 2,000	\$ 5,000	\$ -	\$ 5,000
f. Other					
ArcGIS Online 1 Yr Subscription (10 user)	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 5,000
Totals	\$ 14,930	\$ 7,450	\$ 21,580	\$ 1,350	\$ 22,930

SECTION 7 – FUNDING PARTNER STATEMENT OF SUPPORT

**DEPARTMENT OF MILITARY AFFAIRS
STATE OF MONTANA**



Disaster & Emergency Services Division
ARMED FORCES RESERVE CENTER
1956 MT MAJO STREET - PO BOX 4789
FORT HARRISON, MONTANA 59636-4789
406.324.2777



THE HONORABLE STEVE BULLOCK
GOVERNOR

MAJOR GENERAL MATTHEW T. QUINN
ADJUTANT GENERAL

February 13, 2018

Erin Fashoway
Montana State Library
1515 E 6th Ave
Helena, MT 59620

SUBJECT: Letter of Support for Carbon County Montana Land Information Act Grant Application


Ms. Fashoway

I am writing in support of Carbon County's application to the Montana Land Information Act (MLIA) grant program. Carbon County's proposed project "Development of the Emergency Management Map Application (EMMA) for Carbon County" is a much needed project. Integrating multiple emergency management plans at the local level into a Web map application has great potential to streamline the dissemination of critical information during an emergency or disaster. The proposed project directly supports the MLIA grant category priority to "Development of GIS to support Disaster and Emergency Operations and Planning."

We would recommend that the Montana State Library fund this project at the full level. As a planning tool, EMMA will help our local communities become more resilient and be better prepared for emergencies and disasters. As an operation resource, EMMA will assist emergency professional in making informed decisions in critical moments of crisis.

We look forward to working with DES Coordinator, Tom Kohley, and the County to help review and provide feedback on the application as it is developed. We hope you will support this project and make Montana communities more resilient to disasters

If you have any questions, please contact me at bhonzel@mt.gov or by phone at 406-324-4771.



BURKE S. HONZEL
Preparedness Branch Manager
Disaster and Emergency Services Division

SECTION 8 – RENEWABLE GRANT ACCOUNTABILITY

Carbon County has been the recipient of four previous MLIA grant awards.

2012. Development of an Emergency Notification System for Carbon County. This project developed CarbonAlert.org and linked it to the underlying CodeRED emergency notification system (ENS). The ENS has been deployed on several occasions since its inception to notify residents of emergencies and non-emergent situations (e.g., road closures, race events that might impact travel). The CarbonAlert.org Website has been a consistently used as resource during local emergencies. It is currently being updated to give it a new look and design. This project was completed on time and within budget. The ENS was presented at the 2014 Intermountain GIS conference in Billings.

2013. Development of a Carbon County GeoAtlas for Emergency Responders. This MLIA project produced approximately 90 paper and digital copies of a county-wide map book at various scales. The products are still in use by emergency personnel around the County. In fact, it is safe to say that almost every emergency vehicle in the County has a copy of the GeoAtlas. This project was completed on time and within budget.

2015 - Enhancement of Geodetic Control in Carbon County. This project enhanced the position of 213 of the proposed 200 geodetic control points and greatly improved the spatial accuracy of both the PLSS and the cadastral layers in eastern Carbon County. The project was completed on time with the exception of the delivery of the corner records to the County Clerk and Recorder which occurred on January 30, 2015.

2018. Preparing Carbon County for Next Generation 9-1-1. This MLIA grant award is currently in progress with an approved extension by MSL. The project is working on standardizing its critical 9-1-1 layers of structures, road centerlines and administrative boundaries to make them NENA compliant and ready for NG911 implementation. Below is a Summary of Goals, Objectives and tasks with level of completion:

Goal 1. Make Carbon County GIS data NG 9-1-1 compliant

Objective A. Evaluate ESRI's LGIM for NENA compliance and make changes to file geodatabase as needed.

Task1. Work collaboratively with Geodata Services, Inc. to evaluate ESRI's LGIM for compliance to NENA standards. **Complete.**

Task 2. Migrate Carbon's file geodatabase to the latest LGIM version using the ArcGIS Solutions Schema Migration Wizard. **Complete.**

Task 3. Make changes to LGIM schema as needed to comply with NENA standards. **In progress (50% complete).**

Task 4. Create FGDG compliant metadata for all NG 9-1-1 GIS layers. **In progress (50% complete)**

Goal 2. Improve the accuracy of critical NG 9-1-1 GIS data layers

Objective A. Improve the spatial accuracy of structure points GIS data.

Task 1. Hire a temporary GIS technician to review and edit spatially inaccurate structure point features in the geodatabase. **Complete.**

Objective B. Conduct QA/QC on critical NG 9-1-1 GIS layers.

Task 1. Review and fix all topological errors that exist in administrative boundary layers including emergency service zones, fire districts, EMS service areas, law enforcement areas, community boundaries and road layers. **Complete.**

Task 2. Request and acquire CenturyLink and Nemont telephone records and compare customer addresses against the addresses contained in the GIS structure layer. Identify all errors and omissions between both datasets. **In progress (40% complete)**

Goal 3. Publish, manage and update NG 9-1-1 compliant data in cloud server environment

Objective A. Publish NG 9-1-1 datasets to AGO and increase access by County personnel.

Task 1. Publish structures, road centerlines and other NG 9-1-1 related data to AGO. **In progress (90% complete)**

Task 2. License five additional AGO seats from ESRI or explore ESRI's new Small Agency Program to expand its use to other County departments and first responders in County. **Complete.**

Task 3. Purchase one year licensing of GEO Jobe Admin Tools to assist with administration and management of data, users and groups in the AGO environment. **Not needed.**

Task 4. Work with Geodata Services, Inc. to train on GEO Jobe Admin Tools and leverage its features to develop specific workflows to best manage NG 9-1-1 data in the AGO environment. **Not needed.**

Objective B. Explore strategies using ESRI technologies to achieve common NG 9-1-1 goals.

Task 1. Meet with Teton County staff to share ideas and workflows using AGO, ArcGIS Pro and Collector to achieve goals related to NG 9-1-1. **Complete.**

Objective C. Learn about and train on current GIS technologies

Task 1. Attend technical workshops related to AGO, ArcGIS Pro and the Collector application at the 2016 ESRI User Conference. The GIS Coordinator for Carbon County will travel to San

Diego, CA and attend the UC in June. Estimated airfare and 4 nights, lodging and food (shared expense with County). **Complete.**

Objective D. Update the County's structure point data in the field in real time.

Task 1. Purchase three iPad Air 128GB with Wi-Fi+cellular tablets with protective cases to collect field data by County personnel. **Complete.**

Task 2. Work with Geodata Services, Inc. to assist with training and deployment of tablets to update structure point attribute data (e.g., signed addresses,) and capture geotagged photos of structures. **In progress (90% complete).**

Objective E. Create citizen portal to review and validate addresses

Task 1. Work with Geodata Services, Inc. to develop citizen-oriented Web app to allow County residents to lookup, review and request updates to physical addresses. **In progress. (40% complete).**

Task 2. Attend the Montana Association of Counties (MACO) meeting, September 2016 in Billings to serve on discussion panel for NG 9-1-1 implementation for Montana Counties. Estimated at 150 miles, 1 night lodging and food. **Cancelled.**

SECTION 9 – AUTHORIZING STATEMENT

Authorizing Statement

I hereby certify that I have read the application and the information and all statements in this application are true, complete and accurate to the best of my knowledge and that the project or activity complies with all applicable state, local and federal laws and regulations.

I further certify that this project will comply with applicable statutory and regulatory standards.

I further certify that I am (by my signature) authorized to enter into a binding agreement with the Montana State Library to obtain a grant if this application receives approval.

A handwritten signature in black ink that reads "Doug Tucker". The signature is written in a cursive style and is positioned above a horizontal line.

Doug Tucker

Presiding Officer, Carbon County Board of County Commissioners

February 15, 2018

SECTION 10 – CHECKLIST – SIGNATURES REQUIRED

Initial or mark n/a	Completed Required Task
	Proposal Prepared by an outside party – I have read this document in its entirety. <i>(if applicable)</i>
TK	Section 1 – Applicant, Partner, and Proposal Information
TK	Primary Applicant Information
TK	Funding Partner <i>(if applicable)</i>
TK	Proposal Information
TK	List All Past Awarded MLIA Grants
TK	Section 2 – Relevance <i>(300 max word limit)</i>
TK	Section 3 – Public Benefit
TK	Section 4 – Project Management
TK	Section 5 – Scope of Work Narrative <i>(4-page limit)</i>
TK	Section 6 – Budget Justification Narrative and Table <i>(3-page limit)</i>
TK	Budget Justification Narrative
TK	Complete Budget Table
TK	Section 7 – Funding Partner Statements of Support <i>(if applicable)</i>
TK	Section 8 – Renewable Grant Accountability Narrative <i>(if applicable)</i>
TK	FY2018 Grantee Report <i>(if applicable)</i>
TK	Past MLIA Grant Project Narrative <i>(if applicable)</i>
TK	Section 9 – A Signed Authorizing Statement